REMARKS

Applicant respectfully traverses the rejection of claims 1-4, 8-10, and 12-18 as being anticipated by Reinecke.

Claim 1 specifies in part:

> sensing a vehicle condition for which braking of the driven wheels is desired independently of operator demand;
>
> in response to said sensing step, electrically actuating a dual brake valve of the vehicle thereby to direct braking pressure to both the first and second braking circuits of the vehicle.

The Office Action alleges that Reinecke's brake valve device 6, described in Reinecke at Column 3, lines 31-45, is inherently "electrically actuated" and therefore this last quoted element of claim 1 is anticipated. Applicant respectfully disagrees.

The legal test of "anticipation by inherency" is whether the reference necessarily (not "possibly" or "could be") teaches one of ordinary skill in the art, the claimed invention.

"To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 848 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed Cir. 1991).

The mere fact that a certain thing may result from a given set of circumstances is not sufficient; the missing element must necessarily result from the prior art reference. In re Oelrich, 666 F.2d 1324, 231 USPQ 136, 138 (Fed. Cir. 1986).

In the present case, Reinecke discloses the use of the brake valve device 6 to provide braking pressure to a driven wheel which spins during acceleration. Specifically, Reinecke says:

> A still further variation is that of employing the operator's brake valve device 6 to provide braking pressure to a driven wheel or wheels which spin during acceleration. In this case, solenoid valve 32 may be eliminated and the supply of brake pressure applied via the brake valve and whichever modulator valve has been actuated by the anti-spin brake control circuit 28.

In order to apply brake pressure "via the brake valve", Reinecke must actuate the brake valve. Reinecke does not say how the brake valve is actuated. The question then is, would a

person of ordinary skill in the art, reading this reference, necessarily conclude that the only possible way to achieve this is to actuate the brake valve device 6 electrically?

The answer is, "No, because there is at least one alternative." Specifically, a hand-actuated, pneumatic switch can be used.

Applicant's own specification discloses such a pneumatic switch. Paragraph [0007] of the application reads:

> [0007] Some vehicles with dual brake valves also have a brake valve actuator (BVA), which is an actuatable device interposed between the valve and the brake pedal that applies enough force to the brake valve so that the brake valve's output (delivery pressure to the primary and secondary circuits) is at least 85 psi. The BVA is operated (piloted by, or receives a pneumatic control signal from) either (a) a pneumatic on/off control valve actuated by the driver's hand like a switch, or (b) an on/off solenoid valve controlled by an on/off electrical switch operated by the driver's hand. The BVA is used to conduct a pre-trip inspection, in which the brakes are set and held in an applied condition so that the driver can check the braking system of the vehicle without having to be in the cab pressing on the brake pedal. U.S. Patent No. 6,659,244 shows the use of a brake valve actuator in a vehicle air braking system.

A copy of said U.S. Patent No. 6,659,244 is attached hereto for convenience. That Patent shows a pneumatic switch (two way valve) 72 for pneumatically controlling, upon manual actuation, the foot brake valve (dual brake valve).

One commercial example of such a switch is the PP-5 control valve of Bendix Commercial Vehicle Systems, as shown in the attached prior art Service Data Sheet (4 pages). This valve (and the other similar ones shown in the sheet) is operable manually by pushing and pulling a button to enable or disable the flow of compressed air through the valve.

This type of valve is very commonly used on the dashboard of heavy vehicle, to control a selected compressed air function of the vehicle braking system. It would be a simple matter to place a valve of this type in the line between Reinecke's supply air 4 and brake valve device 6. In the event the vehicle operator sensed a traction event, such as by feeling wheel slippage, the operator would simply pull (or push) the button of this valve thereby immediately providing supply air to the brake valve device 6. The ECU could then control the individual brakes.

Thus, it is seen that there is a simple and known alternative to "electrical actuation" of Reinecke's brake valve device 6. This alternative type of actuation is manual—not electric—because it is accomplished by a manual, pneumatic (not electric) valve.

Coming up with this "manual actuation" scenario is an easy step for a person of ordinary skill in the art of compressed air vehicle braking systems, as such a person is familiar with the many uses of manual valves in vehicles. Further, as described in Paragraph [0007] of applicant's specification, this is a known, common usage of a pneumatic switch to actuate a dual brake valve (one large commercial manufacturer of heavy trucks uses this setup to enable its operators to conduct pre-trip brake inspections). Thus, the "electrical actuation" scenario is not necessarily the only scenario--there is an alternative. And because there is an alternative, there is no anticipation by inherency, and so claim 1 is allowable.

Claims 2 and 3 are dependent from claim 1 and are allowable for the same reason as claim 1.

Claim 4 is dependent from claim 1 and is allowable for the same reasons as claim 1. Claim 4, additionally, specifies that the vehicle braking system:

> includes an electrically energizable actuator associated with the dual brake valve for actuating the dual brake valve in response to said sensing step, the actuator being manually energizable in response to an operator signal independently of the foot of the a vehicle operator, and wherein said step of electrically actuating the dual brake valve comprises electrically energizing the actuator thereby to actuate the dual brake valve.

Thus, claim 4 adds to claim 1 the additional feature of manual actuation of the electrically energizable actuator. This structure clearly is not expressly present in the Reinecke reference, so claim 4 stands rejected again on the inherency argument, with the Office Action noting "element 30" of Reinecke as being relevant.

Element 30, however, is not a manual actuator for the brake valve device 6; rather, it only enables electrically the traction control circuitry as a whole; there is shown or described no electrical or manual connection, or cooperation, between element 30 and element 6. Thus, a person of ordinary skill in the art would not necessarily conclude that the switch 30 actuates the brake valve device 6 in a manner independent of the electric actuation based on sensing wheel spin, for example. Reinecke does not inherently and necessarily teach such a dual actuation for

the brake valve device 6. Therefore, claim 4 is not inherently anticipated by Reinecke, and claim 4 is allowable.

Claims 8-10 and 12-13 are allowable for the same reason as claim 1.

Claim 14 is allowable for the same reasons as claim 4.

Independent claim 15 is allowable for the same reasons as claim 4. Claim 15 specifies a manually energizable actuator for actuating the dual brake valve independently of the foot of a vehicle operator. Claim 15 further specifies that this manually energizable actuator is also energizable electrically. Such an actuator clearly is not found expressly in Reinecke. In addition, Reinecke does not inherently teach such a dual-energized actuator, or suggest how one could be made. Therefore, claim 15 is allowable.

Claims 16-18 are dependent from claim 15 and are allowable for the same reasons as claim 15.

Conclusion

In view of the foregoing arguments, applicant respectfully submits that all the pending claims of this application are allowable, and notice to that effect is requested.

Date: 4/25/06

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Bendix

Service Data

SD-03-3611

Bendix® PP-1™, PP-2™, PP-5™, PP-8™, & RD-3™ Push-Pull Type Control Valves

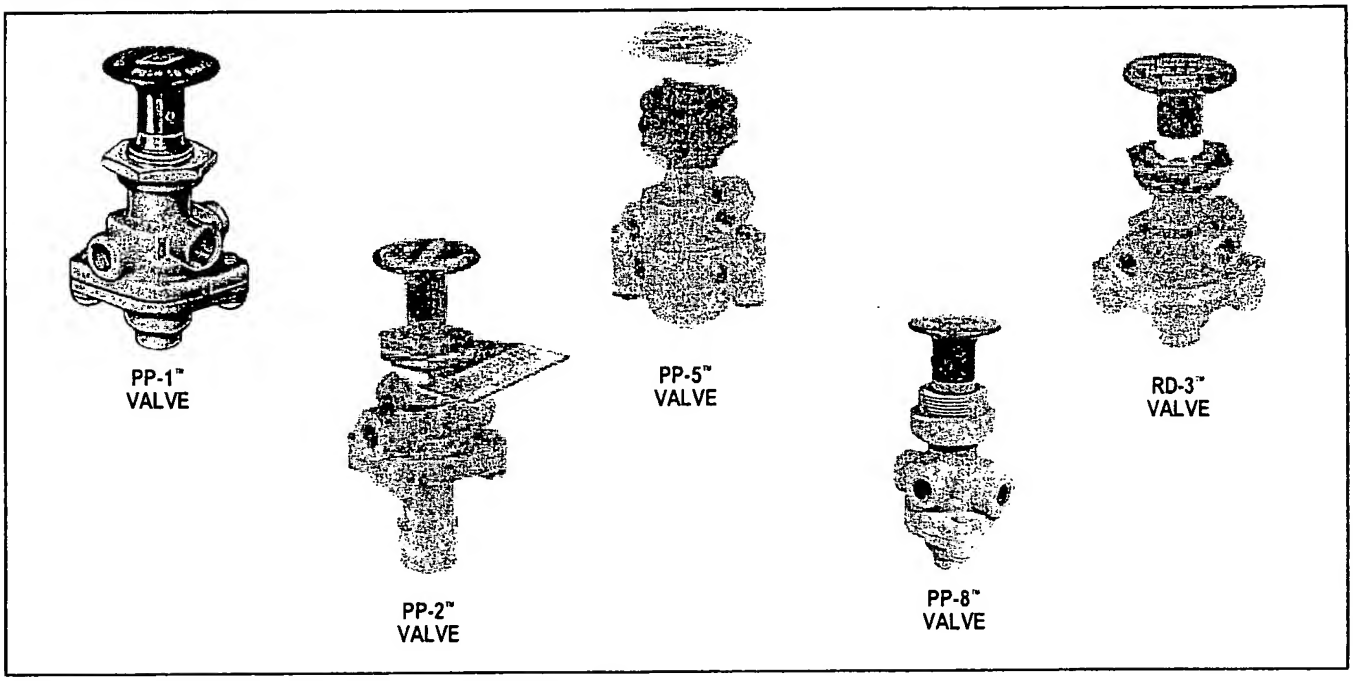


*FIGURE 1 - **PUSH-PULL TYPE CONTROL VALVES***

DESCRIPTION

The PP valves are push-pull manually operable on-off air control valves with an exhaust function. Most are pressure sensitive, so that they will automatically move from the applied to the exhaust position as supply pressure is reduced to a certain minimum, depending on the spring installed. The exception to this is the PP-8™ valve and some PP-1™ valves which have no spring. The PP-8™ valve also has a larger diameter shaft for button mounting so that when installed on the same panel with other PP valves the buttons cannot be inadvertently mixed. The PP-8™ valve is normally used to operate tractor spring brakes independently from the trailer.

The PP-5™ valve is unique in having an auxiliary piston in the lower cover which, upon receiving a pneumatic signal of 18 psi or more, will cause the valve to move from the applied to the exhaust position from a 100 psi application.

The RD-3™ valve differs slightly in that it normally remains in the exhaust position and requires a constant manual force to hold it in the applied position.

The PP-2™ valve has an auxiliary port which may be plumbed into a service brake line to release the spring brakes if a service application is made, preventing compounding of forces on the foundation brakes.

PREVENTIVE MAINTENANCE

Important: Review the Bendix Warranty Policy before performing any intrusive maintenance procedures. A warranty may be voided if intrusive maintenance is performed during the warranty period.

No two vehicles operate under identical conditions, as a result, maintenance intervals may vary. Experience is a valuable guide in determining the best maintenance interval for air brake system components. At a minimum, the PP valves should be inspected every 6 months or 1500 operating hours, whichever comes first, for proper operation. Should the PP valves not meet the elements of the operational tests noted in this document, further investigation and service of the valve may be required.

	AUTOMATIC EXHAUST	MOMENTARY APPLY	PILOT TRIP FEATURE	NON-AUTOMATIC
PP-1	20,30,40 or 60 psi			
PP-2	40 psi			
PP-5	40 psi		18 psi	
RD-3		Must be held manually		
PP-8				Will remain in either position

REMOVAL

Block and/or hold the vehicle by a means other than air brakes and drain all reservoirs.

1. Drive the button roll-pin out with a punch and remove the button.
2. Mark each air supply line and its port for easy reinstallation, then disconnect them. Remove the valve from the panel by removing the panel mounting nut.

INSTALLING

1. Install valve in panel, securing with the panel mounting nut.
2. Reconnect the air lines using marks made during removal as a guide.
3. Install the operating button. Secure the operating button by installing the button roll pin.

DISASSEMBLY: PP-1™, PP-8™ AND RD-3™ VALVES

1. Remove the two cap screws (3) which retain the lower cover and remove cover. Remove the sealing ring (4).
2. Insert a small punch through the roll pin hole in the stem and remove the lock nut (5).
3. Remove inlet-exhaust valve (6) and plunger (7) and spring (8) (if any).
4. Remove o-ring (9) from plunger.

DISASSEMBLY: PP-5™ VALVE

1. Perform same operations as for PP-1™ valve.
2. Remove inlet seal (10) in Figure 4 from lower cover. Remove the ring diaphragm (4) from the inlet seat.
3. Remove piston (11) Figure 4 and o-ring (2).

DISASSEMBLY: PP-2™ VALVE

1. Insert a small punch through the roll pin hole in the plunger and remove the lock nut (1) from the plunger.
2. Withdraw the plunger and remove the spring (9) and o-ring (8).
3. Remove the two machine screws (2) and remove the lower cover (3).
4. Remove the inlet-exhaust valve (4), and piston (5).
5. Remove o-rings (6 & 7) from piston.

OPERATING AND LEAKAGE TESTS

PP-1™, PP-8™, RD-3™ VALVE

1. An accurate test gauge should be tee'd into the supply line and a means of controlling the supply pressure provided. Apply a 120 psi air source to the supply port. A small volume reservoir (e.g. 90 cu. in.) with a gauge should be connected to the delivery port.
2. With 120 psi supply pressure, and the button pulled out (exhaust position), leakage at the exhaust port should not exceed a 1" bubble in 5 seconds; at the plunger stem a 1" bubble in 5 seconds. There should be no leakage between upper and lower body.
3. Push the button in (applied position). Leakage at the exhaust port should not exceed a 1" bubble in 3 seconds; at the plunger a 1" bubble in 3 seconds. (The RD-3™ valve will have to be manually held in this position.)
4. Reduce the supply pressure. At a pressure from 60 to 20 psi depending on the spring installed the button should pop out automatically, exhausting the delivery volume. (This does not apply to the RD-3™, PP-8™ or some PP-1™ valve's).

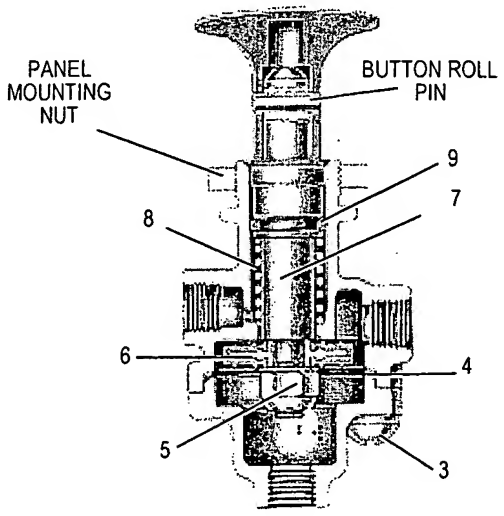
PP-5™ VALVE

1. Proceed as for PP-1™ valve through Step 3.
2. Connect a modulated source of air pressure to the pilot air inlet. With the button pushed in (applied position) with 125 psi supply pressure and a gradually increasing pressure applied at the pilot air port the valve should move to the release position with a pilot pressure of not more than 18 psi. Leakage in this mode should not exceed a 1" bubble in 3 seconds at the exhaust port and a 1" bubble in 5 seconds at the plunger stem.

PP-2™ VALVE

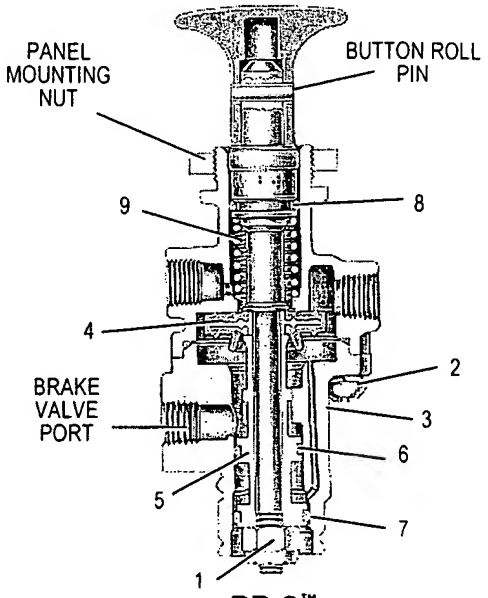
1. Proceed as for PP-1™ valve through Step 1.
2. With the button pulled out (exhaust position), leakage at the brake valve port or at the plunger stem should not exceed a 1" bubble in 5 seconds.
3. Push the button in. Supply pressure should be present in the delivery volume. Leakage at the exhaust port or around the plunger stem should not exceed a 1" bubble in 5 seconds.
4. Pull the button out and apply supply pressure at the brake valve port. Supply pressure should be present in the delivery volume and leakage at the exhaust port should not exceed a 1" bubble in 5 seconds.

Note: If any of the above push-pull valves do not function as described or if leakage is excessive, it is recommended they be returned to our nearest authorized distributor for a factory rebuilt or new valve.



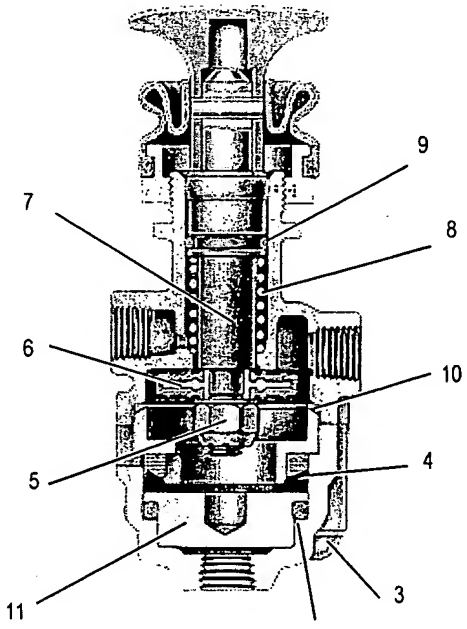
PP-1™
VALVE

FIGURE 2



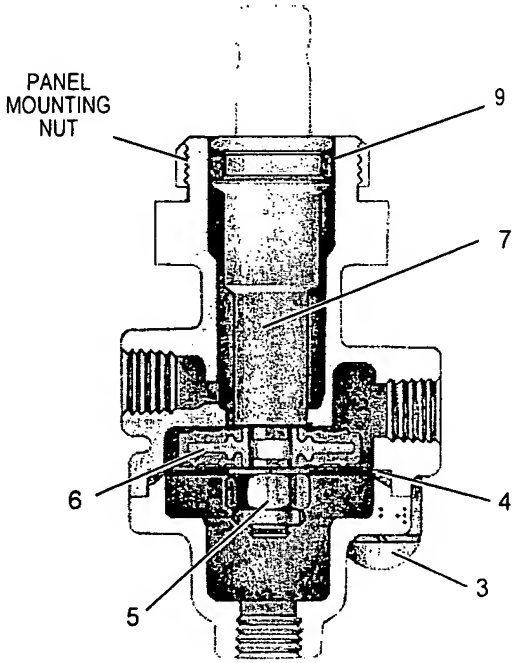
PP-2™
VALVE

FIGURE 3



PP-5™
VALVE

FIGURE 4



PP-8™
VALVE

FIGURE 5

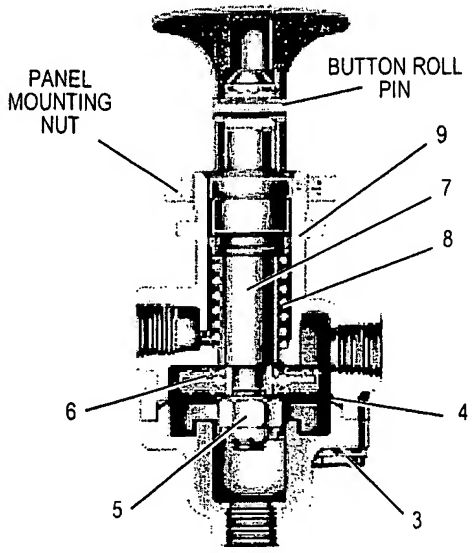
WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. **Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.**
2. **Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed.**

Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.

3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with an AD-IS™ air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.



RD-3™
VALVE

FIGURE 6

Bendix®